

Claims

We claim:

1. A method for manufacturing an electronic device having a substrate, electronic parts that are mounted on the main surface of said substrate, and a resin part that is formed on the main surface of said substrate so that said resin part fills a specified space surrounding at least one electronic part, said method comprising:

forming a collective substrate consisting of a plurality of said substrates linked in the form of a matrix;

mounting said electronic parts on the main surface of said collective substrate;

forming said resin part on the main surface of said collective substrate so that it covers said at least one electronic part; and

separating said collective substrate into individual electronic devices.

2. The method of Claim 1 further comprising conductively connecting and mounting terminal electrode members across specified adjacent substrates on the upper surface of said collective substrate prior to the formation of said resin part, so that said terminal electrode members cross the boundary lines of adjacent said substrates,

forming said resin part to a specified thickness over the entire main surface of said collective substrate, and

cutting said terminal electrode members as said collective substrate is separated into individual electronic devices.

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4. The method of Claim 2 further comprising forming an intermediate layer consisting of an insulating elastic material on the main surface of said collective substrate prior to the formation of said resin part, so that said intermediate layer covers said electronic parts.

6. The method of Claim 5 further comprising forming a further resin layer in either a non-vacuum state or a vacuum state on the surface of said resin part after said resin part has been formed using said vacuum printing method:

8. The method of Claim 7, further comprising forming an electromagnetic field shielding layer using a resin in which at least one of a ferrite filler or a metal filler is dispersed.

9. The method of Claims 1, 2, 3 or 4 wherein said resin part is formed using an insulating resin.

10. The method of Claims 1, 2, 3 or 4 wherein said resin part is formed using a resin in which at least one ferrite filler or a metal filler is dispersed.

11. The method of Claims 1, 2, 3 or 4 wherein said resin part is formed using a material that has waterproof properties.

12. The method of Claims 1 or 3 wherein forming said resin part comprises forming said resin part with a specified thickness over the entire main surface of said collective substrate and

separating said collective substrate into individual electronic devices comprises cutting said collective substrate using a dicing device.

13. The method of Claims 2 or 4 wherein separating said collective substrate into individual electronic devices comprises cutting said collective substrate using a dicing device.

14. An electronic device comprising a substrate, electronic parts that are mounted on the main surface of said substrate, a resin part that is formed on the main surface of said substrate so that said resin part fills a specified space surrounding at least one of said electronic parts, and terminal electrodes that are exposed to the outside.

15. The electronic device of Claim 14, with an intermediate layer consisting of an insulating elastic material formed on the main surface of said substrate so that said intermediate layer fills a specified space surrounding said electronic parts.

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16. The electronic device of Claim 14 or Claim 15, with said substrate having the shape of a rectangular solid of a specified thickness.

17. The electronic device of Claim 14 or Claim 15, with said resin part having the shape of a rectangular solid that is formed to a specified thickness over the entire main surface of said substrate, and the side surfaces of said resin part are positioned in the same planes as the side surfaces of said substrate.

18. The electronic device of Claim 14 or Claim 15, with said resin part having the shape of a rectangular solid formed over the entire main surface of said substrate, and

said terminal electrodes embedded in said resin part, and the end surfaces of said terminal electrodes exposed in the same plane as at least one of the side surfaces of said resin part and/or surface of said resin part that is parallel to the main surface of said substrate.

19. The electronic device of Claim 14 or Claim 15, with said resin part consisting of a resin in which at least one of a ferrite filler or a metal filler is dispersed.

20. The electronic device of Claim 14 or Claim 15, with said resin part consisting of a resin which has at least one of insulating properties, heat resistance, waterproof or chemical resistance.

21. The electronic device of Claim 14 or Claim 15, with said at least one layer selected of an electromagnetic field shielding layer, a heat-dissipating layer or a metal layer formed in a specified region on the surface of said resin part.

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22. A resin filling method in which a specified space around at least one electronic part mounted on the main surface of a substrate, or the surface of an intermediate layer, is filled with a resin, said resin filling method comprising

setting at least the area around said electronic parts in a vacuum state,

disposing a resin which possesses viscosity so that said resin envelops at least one of said electronic parts in said region placed in a vacuum state, and so that said resin contacts the main surface of said substrate or surface of said intermediate layer at least in the area surrounding said at least one of said electronic parts, and

releasing said vacuum state so that a non-vacuum state results.

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